

Flight Scientist Report
Friday 03/04/2022 ACTIVATE RF134

Flight Type: Statistical Survey Flight
Flight Route:

Special Notes: Second of two flights. Working out of Zibut to sample excellent low cloud deck and potentially less pollution than the first flight near Oxana that had more forecasted dust/smoke influence.

King Air

Pilot report (Coldsnow):

Flight flown as briefed (LFI ATLIC ZIBUT SHOKR ZIBUT ATLIC). Three dropsondes were released during flight and all performed nominally. UC-12 was delayed on the ground after the Falcon took off due to traffic (10 min delay). Winds were strong out of the Southwest (80-120 kts). Due to delay and winds, the UC-12 was able to get with and stay with the falcon on the outbound leg but on the inbound leg, portions of the flight were flown outside of 10nm coincidence. Falcon was outside of 10 min abeam SAVIC. Falcon accomplished a 360 abeam ROLLE to get timing back within 5 min. However, by the time the UC-12 reached ZIBUT, the falcon was once again outside of 10 min. All research systems performed nominally. UC-12 had to shutter laser when NASA426 passed directly underneath at FL250.

Flight scientist report (Seaman):

RF134

3/04/2022 Flight 2 of 2

Takeoff: 18:42:06 utc

Landing: 22:23 utc

Flight path:

KLFI ATLIC ZIBUT SHOKR ZIBUT ATLIC KLFI

Ops Notes:

Falcon took off first and slowed down to let uc12 catch up after traffic delayed uc12 t/o by about 10 minutes.

Instrument notes:

All instruments operated nominally. HSRL-2 Cals and baseline done in endpoint turn.

Science notes:

Flight path was shared with P3 flying HALO HSRL and radar instruments.

Cloud deck from ZIBUT until about 3/4 of the way to SHOKR after which elevated scattering from surface to 4kft trailing off through 4.5kft, strong thin depolarization layer at 4.5kft out to SHOKR with tenuous clouds appearing again near SHOKR.

Sonde drops:

- 1) ZIBUT
- 2) Turnaround at SHOKR
- 3) ATLIC (near coast)

Falcon

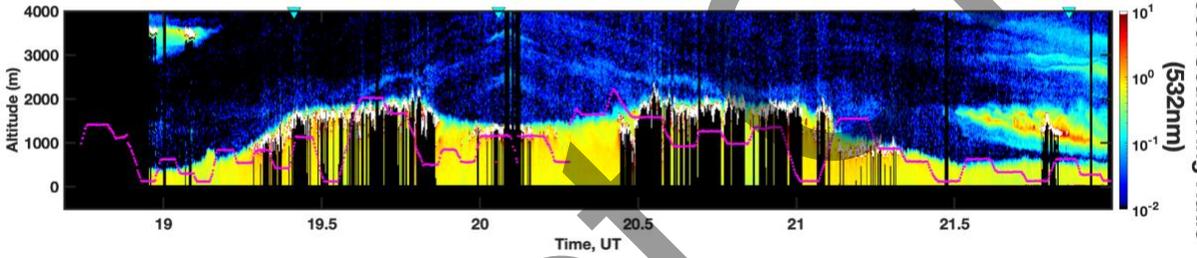
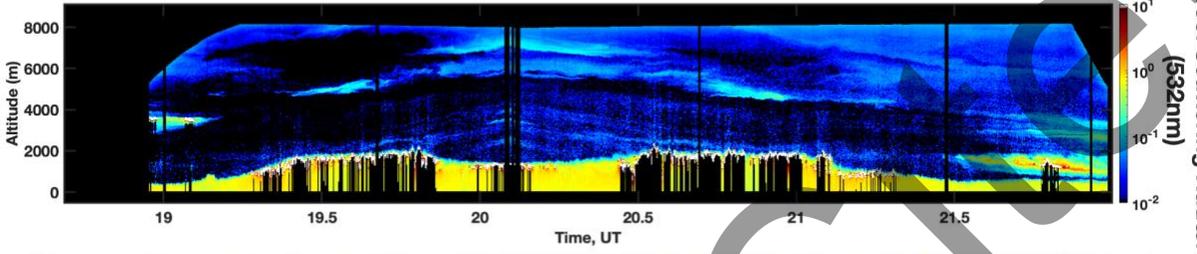
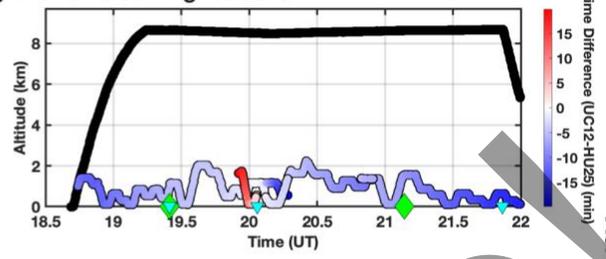
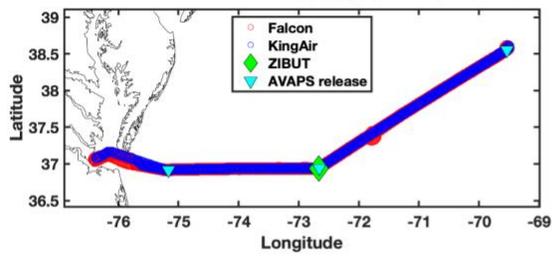
Pilot report (Baxley):

HU-25 flight coordinated with UC-12 and WFF P-3 KLF I ATLIC ZIBUT SHOKR ZIBIT ATLIC KLF I (extended in flight after SHOKR to 3725N07147W) Weather as expected and mission flown as briefed. Note 1: at ~1858Z (3656N07419W) HU-25 at 500' AGL and crossed astern of two ships steaming north, one of which was billowing a lot of smoke. Note 2: passed directly under the WFF P-3 between ZIBUT and SHOKR, with P-3 heading west. Note 3: made left 360 turn at 1858Z (3725N07147W) to improve spacing between HU-25 and UC-12.

Flight scientist report (Crosbie):

Stat survey ZIBUT-SHOKR. Markedly different conditions to the morning flight. Clear conditions were observed towards ZIBUT with a well-defined marine layer and very dry air observed above. Once cloud developed it retained a broken structure but the clouds had a higher water content. There were mesoscale features in the cloudy region including an area that was predominantly cloud free.

20220304 - ACTIVATE - KingAir and Falcon flight tracks



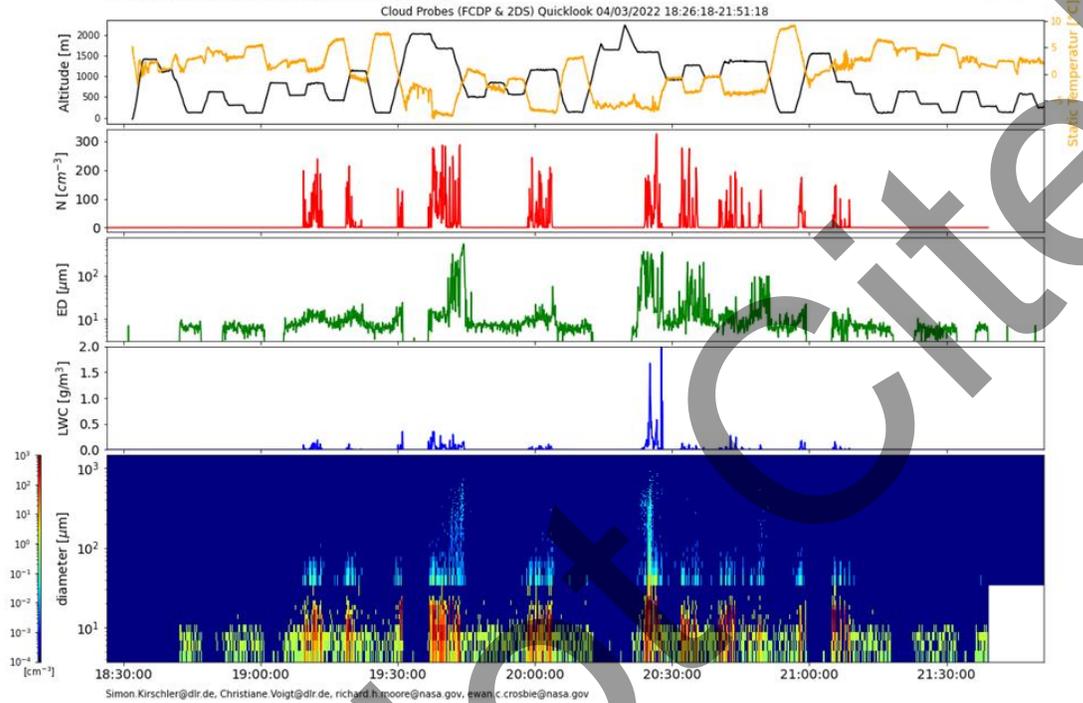
Aerosol Scattering Ratio (532nm)

Do Not

Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

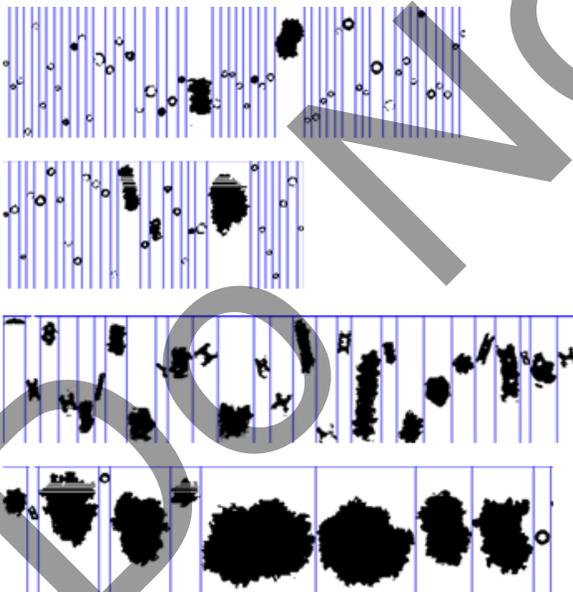
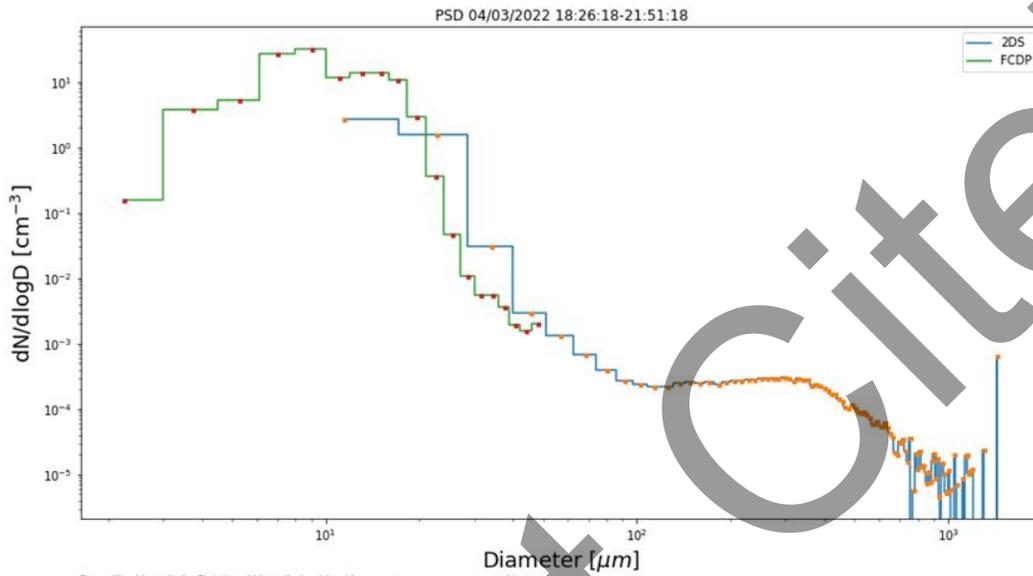
preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



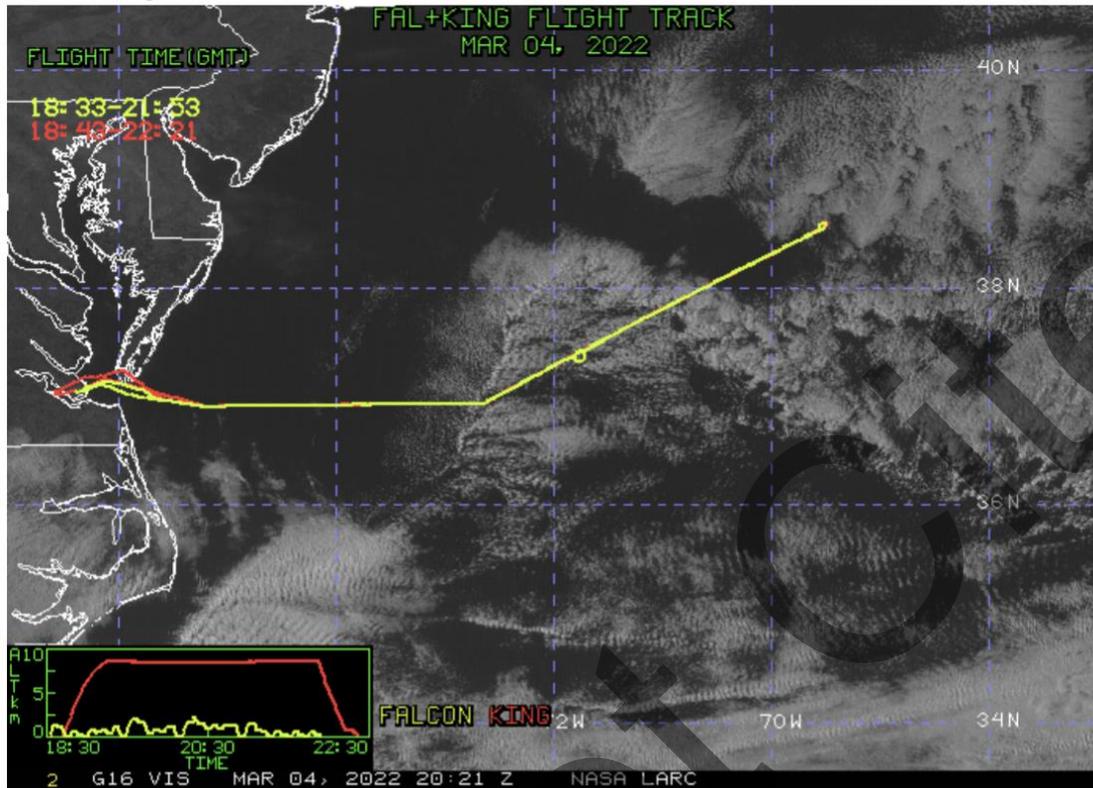
PSD ACTIVATE

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Mixed phase clouds with only ice
Precip.

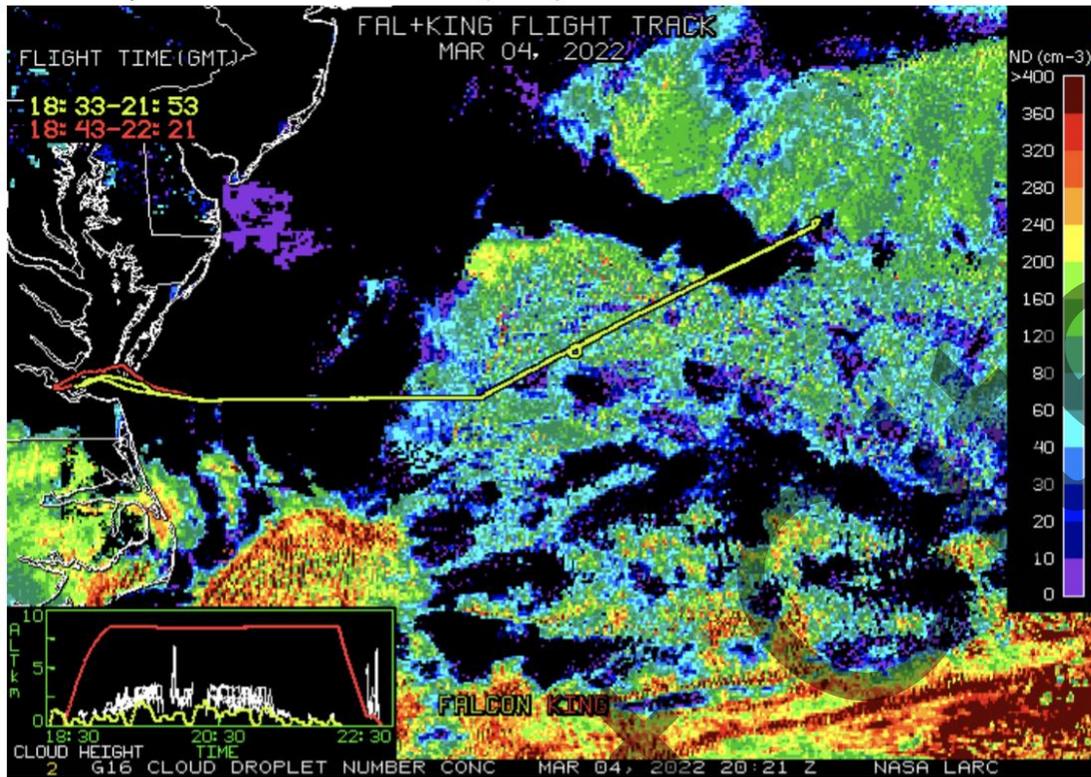
NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 134, 20:21 UTC Mar 04, 2022
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

